(h) a nucleotide sequence that is complementary to a nucleotide sequence selected from the group consisting of the nucleotide sequences set forth in (a)-(g); and

(i) a nucleotide sequence that hybridizes under stringent conditions to at least one nucleotide sequence selected from the group consisting of the nucleotide sequences set forth in (a) and (b) and complementary sequences thereof, said stringent conditions comprising hybridization at 37°C in 45% formamide, 1 M NaCl, and 1% SDS and a wash in 1X SSC at 55°C;

wherein said nucleotide molecule encodes a P-glycoprotein that controls plant growth or said nucleotide molecule is complementary to a nucleotide sequence that encodes said P-glycoprotein.

REMARKS

The Specification Has Been Amended

The specification has been amended to correct some inadvertent typographical errors. On page 13, an incorrect Patent Deposit No. was indicated three times. The specification has been amended to replace "2646" with --2645-- in each instance. No new matter has been added by way of amendment of the specification

Status of the claims

Claims 19 and 25-32 have been cancelled. Claims 25-32 have been cancelled without prejudice or disclaimer as being drawn to non-elected subject matter. Applicants expressly reserve the right to file divisional applications or take such other appropriate measures deemed necessary to protect the inventions in the cancelled claims.

Claims 1-6, 10, 18, 20, and 24 have been amended.

Claims 1, 4, and 24 have been amended to delete reference therein to non-elected subject matter. Parts (a)-(c) of original claims 1, 4, and 24 have been deleted and the remaining parts, (d)-(m), have been relabeled in the amended claims as (a)-(i). In addition, part (c) of the amended claims has been amended to clarify that the recited nucleotide sequence consists of at least 19 contiguous nucleotides of the nucleotide sequence set forth in part (b). Parts (h) and (i) have been amended due to the deletion of the non-elected subject matter, particularly parts (a)-(c) of the original claims, and to place these parts of the claims in proper Markush group form. Finally, part (i) has been further amended to recite stringent conditions comprise hybridization at 37°C in 45% formamide, 1 M NaCl, and 1% SDS and a wash in 1X SSC at 55°C. Support for the amendments to the claims can be found in the original claims and throughout the specification, particularly at page 19, lines 10-23.

Claims 1, 4, and 24 have been further amended to point out more distinctly that the nucleotide molecules of the invention encode P-glycoproteins that control plant growth or that such nucleotide molecules are complementary to a nucleotide sequence that encodes a P-glycoprotein. Support for the amendments to the claims can be found in the original claims and throughout the specification, particularly on pages 4-6.

Claim 2 has been amended to replace "nucleotide sequence" with --nucleotide molecule-- in claim line 1 to correct an error in antecedent basis. Claims 4, 6, 18, 20, and 24 were also amended to replace "nucleotide sequence" with --nucleotide molecule-- therein to properly denote a composition of matter. Support for this amendment to the claims can be found in original claim 1 and throughout the specification.

Claims 4, 6, 18, 20, and 24 were similarly amended to replace "nucleotide sequence" with --nucleotide molecule-- to properly denote a composition of matter. Due to this amendment to claims 4, 20, and 24, these claims were further amended to replace "nucleotide sequence is selected from" with --nucleotide molecule comprises a nucleotide sequence selected from--. Support for these amendments to the claims can be found in original claim 1 and throughout the specification.

Claims 3 and 5 have been amended to replace "pathogen-preferred" with --pathogen-inducible-- to correct an obvious clerical error. Support for this amendment to the claims can be found in the specification, particularly on page 33, lines 9-10.

Claim 10 has been amended to italicize the genus name *Brassica*. Support for this amendment can be found in the specification, particularly on page 36, line 16.

Claim 18 has been amended to clarify that Applicants' claimed invention is drawn to a method for modifying the growth of a plant by replacing the phrase "an organism" with the phrase --a plant-- throughout the claim and to point out more distinctly that the growth of the transformed plant is modified. Claim 18 has also been amended to recite certain nucleotide sequence limitations of canceled claim 19. As amended, claim 18 now recites parts (a)-(i) which correspond to parts (d)-(m) of canceled claim 19. Finally, claim 18 has been amended to recite that the promoter drives expression of the operably linked nucleotide molecule by replacing the phrase "promoter capable of driving the expression" with the phrase --promoter that drives expression--. Support for these amendments to the claim can be found in original claim 19 and in the specification, particularly on pages 4-8.

No new matter has been added by way of amendment of the claims.

Claims 1-18 and 20-24 are pending.

Reexamination and reconsideration of the application as amended are respectfully requested.

Priority

The Office Action indicates that Applicants' claim for domestic priority under 35 U.S.C. § 119(e) fails for SEQ ID NOS: 7-9. The Office Action asserts that Provisional Application Serial No. 60/165,176, from which Applicants' claim priority for the instant application, does not provide an adequate written description of SEQ ID NOS: 7-9. The Office Action concludes that the instant application is only entitled to the priority date of 13 November 2000.

Applicants note for the record that Provisional Application Serial No. 60/165,176 provides an adequate written description of non-elected SEQ ID NOS: 1-4 because these sequences are fully disclosed therein. Applicants further note that SEQ ID NO: 3 is a partial-length genomic nucleotide sequence of *Dw3-T* allele and that this sequence corresponds to the full-length genomic nucleotide sequence of *Dw3-T* set forth in SEQ ID NOS: 7. Applicants also note that SEQ ID NO: 4 is a partial-length amino acid sequence of the DW3 protein and that this amino acid sequence corresponds to the full-length amino acid sequence of the DW3 protein set forth in SEQ ID NO: 9.

The Objections to the Claims Should be Withdrawn

The Office Action indicates that claims 1, 4, 19, and 24 were objected to because the claims comprise reference to non-elected inventions. Claim 19 has been canceled. Claims 1, 4, and 24 have been amended to remove reference to the non-elected subject matter. Thus, this objection to the claims is obviated.

The Office Action indicates that claim 10 was objected to because the genus name "Brassica" recited therein was not italicized. Claim 10 has been amended to replace "Brassica" with --*Brassica*--. Thus, the objection to claim 10 is obviated.

In view of the amendments and remarks, it is submitted that the objections to the claims should be withdrawn.

The Rejections of the Claims Under 35 U.S.C. § 101 Should Be Withdrawn

Claims 4-17 and 19-24 were rejected under 35 U.S.C. § 101 because the claimed invention appears to be inoperable and thus lacks patentable utility. Claim 19 has been canceled Claims 4-6, 10, 18, 20 and 24 have been amended. This rejection is respectfully traversed.

The Office Action indicates that the claimed invention reads on a transformed plant, plant cell, or method of modifying growth of a plant comprising a nucleotide having only 19

contiguous nucleotides of the SEQ ID NO:7 or 8. The Office Action asserts that because SEQ ID NO: 7 comprises intron sequences that do not function to encode an amino acid, the 19 contiguous nucleotides include any 19 contiguous nucleotides including those in intron sequences. The Office Action concludes that it is unclear from the instant specification what utility a plant or plant cell would have comprising 19 contiguous nucleotides of an intron of SEQ ID NO:7, or how one of skill in the art would modify the growth of a plant using such a nucleotide.

Applicants have amended claims 4, 18, and 24 to clarify that the transformed plants, plant cell, or methods of modifying growth of a plant are drawn to nucleotide molecules comprising a nucleotide sequence having at least 19 contiguous nucleotides of the nucleotide sequence set forth in SEQ ID NO: 8. SEQ ID NO: 8, which sets forth the cDNA sequence of the *Dw3* gene, is not known to contain intron sequences. Thus, this rejection of the claims is obviated.

In view of the amendments and remarks, it is submitted that the rejections under 35 U.S.C. § 101 should be withdrawn.

The Rejections of the Claims Under 35 U.S.C. § 112, Second Paragraph, Should Be Withdrawn

Claims 1-24 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Claim 19 has been canceled. Claims 1-6, 10, 18, 20, and 24 have been amended. This rejection is respectfully traversed.

The Office Action indicates that the phrase "that hybridizes under stringent conditions" in claims 1, 4, 19, and 24 is indefinite because it is unclear what the metes and bounds of the this limitation are in view of Applicants' definition on page 19, paragraph 2 of the specification. Claims 1, 4, and 24 have been amended to recite that stringent conditions comprise hybridization at 37°C in 45% formamide, 1 M NaCl, and 1% SDS and a wash in 1X SSC at 55°C. Additionally, as discussed above, claim 18 has been amended to recite a hybridization limitation

due to the cancellation of claim 19. This hybridization limitation is identical to that recited in amended claims 1, 4, and 24.

The Office Action indicates that the phrase "nucleotide sequence" in claim 2 is indefinite because claim 1 is directed to "an isolated nucleotide molecule" having "a nucleotide sequence". Similarly, the Office Action also indicates that the phrase "nucleotide sequence" in claims 4, 18-20, and 24 "nucleotide sequence" is indefinite because "nucleotide sequence" does not denote a composition of matter, merely arbitrary information, which cannot be used to transform a plant. The Office Action recommends replacing "nucleotide sequence" with --nucleotide molecule-- to obviate this rejection. Applicants have amended claims 2, 4, 18, 20, and 24 as recommended in the Office Action. While the Office Action did not mention claim 6 in regards to this particular rejection, Applicants have also amended claim 6 to replace "nucleotide sequence" with --nucleotide molecule-- as described above.

The Office Action indicates that the phrase "pathogen-preferred promoters" in claims 3 and 5 is indefinite because it is unclear if Applicants are claiming an expression cassette for expression of a nucleotide sequence in a pathogen or a plant to which claim 2 is directed. The Office Action recommends that the limitation --pathogen-inducible promoters-- would be more appropriate and cites page 33, lines 25-28 of the instant specification. Applicants have amended the claims as recommended. Thus, this rejection of the claims is obviated.

The Office Action indicates that claim 18 is rejected under 35 U.S.C. § 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. In particular, the Office Action indicates that omitted step is selecting a transformed organism having modified growth. In addition, the Office Action asserts that the phrase "capable of driving" in claim 18 is indefinite because it does not state a positive feature of the claimed method, merely suggesting function, said function being required for practice of the invention. Claim 18 has been amended to recite that the growth of the transformed organism is modified and that the promoter drives expression. Thus, this rejection of claim 18 is obviated.

In view of the amendments and remarks, it is submitted that the rejections under 35 U.S.C. § 112, second paragraph, should be withdrawn.

The Rejections of the Claims Under 35 U.S.C. § 112, First Paragraph, Should Be Withdrawn

Claims 1-24 were rejected under 35 U.S.C. § 112, first paragraph. Claim 19 has been canceled. Claims 1-6, 10, 18, 20, and 24 have been amended. This rejection is respectfully traversed.

Claims 1-24 were rejected under 35 U.S.C. § 112, first paragraph, for containing subject matter which was not described in the specification in a such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the invention. The Office Action indicates that Applicants describe the sorghum *Dw3* gene exemplified in SEQ ID NOS: 7 and 8, encoding the polypeptide of SEQ ID NO:9. The Office Action asserts, however, that Applicants do not sufficiently describe the genus of molecules having at least 80% identity to SEQ ID NOS: 7 and 8, other than those directed to a non-elected invention, or other molecules that would hybridize under "stringent conditions" to a nucleotide molecule having the sequence of SEQ ID NOS: 7 or 8.

Applicants respectfully disagree with the Examiner's position. The first paragraph of §112 provides, in pertinent part, that "[t]he specification shall contain a written description of the invention." The Federal Circuit, in discussing the standard for determining compliance with the written description requirement, has provided that " [t]he test for sufficiency of support . . . is whether the disclosure of the application reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter. *Vas-Cath Inc. v. Mahurkar*, 19 U.S.P.Q.2d 1111, 1116 (Fed. Cir. 1991) (citing *Ralston Purina Co. v. Far-Mar-Co, Inc.*, 227 U.S.P.Q. 177, 179 (Fed.Cir.1985) (quoting *In re Kaslow*, 217 U.S.P.Q 1089, 1096 (Fed.Cir.1983))).

Applicants have met this standard. The instant specification sets forth that SEQ ID NOS: 7 and 8 encode a P-glycoprotein, DW3, having the amino acid sequence set forth in SEQ ID

NO: 9. The specification indicates that plants which were homozygous for the *dw3* allele had a dwarf phenotype relative to wild-type plants. Furthermore, the specification on page 47 discloses that multiple alignment results show that overall *Dw3* is 92% and 91.8% identical to the maize *Br2* gene at the nucleotide level and at the amino acid level, respectively. The BR2 protein is known to have an extensive sequence and structural similarity with the multidrug-resistance (MDR)-like gene-encoded P-glycoproteins and that the BR2 protein shares more than 67% amino acid sequence identity with the protein encoded by the *Arabidopsis* P-glycoprotein gene, *AtPGP1*, which was diclosed by Dudler *et al.* ((1992) *J. Biol. Chem. 267*:5882-5888). *See*, U.S. Provisional Application Serial No. 60/164,886 entitled "Genes and Methods for Manipulation of Growth" filed November 12, 1999, which was incorporated by reference in the instant specification. Furthermore, those of ordinary skill in the art would be familiar with the teachings of Sidler *et al.* ((1998) *Plant Cell* 10:1623-1636) on *AtPGP1* and the P-glycoprotein encoded thereby. Sidler *et al.* teach that a nucleotide sequence encoding a P-glycoprotein can be used to modify the growth of plants. In particular, Sidler *et al.* teach that antisense expression of an *AtPGP1* nucleotide sequence in transgenic *Arabidopsis* plants can reduce the height of a plant and that overexpression of an *AtPGP1* nucleotide sequence in the sense orientation in transgenic *Arabidopsis* plants can increase the height of the plant.

The Office Action asserts that the genus of nucleotide molecules that could be used in a method of modifying growth of a plant that encode a P-glycoprotein, is not adequately described. The Office Action cites *Regents of the University of California v. Eli Lilly and Co.*, 43 U.S.P.Q.2d 1398 (Fed. Cir. 1997) and *Amgen Inc. v. Chugai Pharmaceutical Co.* 18 U.S.P.Q.2d 1016 (Fed. Cir. 1991) in support of the rejection of the claims.

Claims 1, 4, 18, and 24 and their respective dependant claims, recite nucleotide sequences having at least 80% sequence identity to the sequence set forth in SEQ ID NO 7 or 8. The recitation of at least 80% sequence identity is a very predictable structure of the sequences encompassed by the claimed invention. Similarly, nucleotide sequences obtained by hybridization under stringent conditions sets forth a very predictable structure of the sequences encompassed by the claimed invention. The Examiner is reminded, that the description of a

representative number of species does not require the description to be of such specificity that it would provide individual support for each species that the genus embraces. 66 Fed. Reg. 1099, 1106 (2000). Satisfactory disclosure of a "representative number" depends on whether one of skill in the art would recognize that the applicant was in possession of the necessary common attributes or features of the elements possessed by the members of the genus in view of the species disclosed. 66 Fed. Reg. 1099, 1106 (2000). Applicants submit that the knowledge and level of skill in the art would allow a person of ordinary skill to envision the claimed invention, *i.e.*, a sequence having at least 80% sequence identity to the sequence set forth in SEQ ID NO:7 or 8 or a sequence that hybridizes under stringent conditions to SEQ ID NO:7 or 8.

Furthermore, the description of a claimed genus can be by structure, formula, chemical name, or physical properties. *See Ex parte Maizel*, 27 USPQ2d 1662, 1669 (B.P.A.I. 1992), *citing Amgen v. Chugai*, 927 F.2d 1200, 1206 (Fed. Cir. 1991). A genus of DNAs may therefore be described by means of a recitation of a representative number of DNAs, defined by nucleotide sequence, falling within the scope of the genus, *or* by means of a recitation of structural features common to the genus, which features constitute a substantial portion of the genus. *Regents of the University of California v. Eli Lilly & Co.*, 119 F.3d 1559, 1569 (Fed. Cir. 1997); *see also* Guidelines for Examination of Patent Applications Under the 35 U.S.C. 112, first paragraph, "Written Description" Requirement, 66 Fed. Reg. 1099, 1106 (2000). The recitation of a predictable structure of at least 80% sequence identity to SEQ ID NO:7 or 8, or by hybridization under stringent conditions to SEQ ID NO: 7 or 8, or complement thereof, is sufficient to satisfy the written description requirement.

An Applicant, however, may also rely upon functional characteristics in the description, provided there is a correlation between the function and structure of the claimed invention. *Id.* (citing *Lilly* at 1568). Specifically, claims 1-18 and 20-24 as amended recite that the claimed sequences encode P-glycoproteins that function to control plant growth. The specification sets forth in detail what is intended by controlling the growth of organisms, particularly plants.

Thus, the genus of nucleotide molecules encompassed by the claims are defined by relevant identifying physical and chemical properties. In fact, the common attributes or features of the

elements possessed by the members of the genus is that they encode P-glycoproteins that function to control plant growth and share at least 80% sequence identity to SEQ ID NO:7 or 8, or hybridization under stringent conditions to SEQ ID NO: 7 or 8, or complement thereof. Claims 1, 4, and 24 have been amended to more distinctly point out that Applicants' claimed invention is drawn to nucleotide molecules which encode P-glycoproteins that function to control plant growth

In summary, the instant disclosure provides a written description that clearly allows persons of ordinary skill in the art to recognize that Applicants have invented what is claimed. Furthermore, the description of a representative number of species does not require the description to be of such specificity that it would provide individual support for each species that the genus embraces. Applicants submit that the relevant identifying physical and chemical properties of the disclosed genus would be clearly recognized by one of skill in the art and consequently, that the Applicant was in possession of the necessary common attributes or features of the elements possessed by the members of the genus. Accordingly, the rejection of claims 1-18 and 20-24 under 35 U.S.C. §112, first paragraph, for lack of written description should be withdrawn.

Claims 18-23 were rejected under 35 U.S.C. § 112, first paragraph, because the specification while being enabling for a method for modifying growth of a sorghum plant comprising transforming said sorghum plant with a construct comprising either a nucleotide molecule having the nucleotide sequence of SEQ ID NO: 7 or 8 in either the sense of antisense configuration, does not reasonably provide enablement for a method of modifying growth of any organism. The Office Action indicates that the specification does not enable any person skilled in the art to which it pertains, or with it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The Office Action indicates that Applicants teach that the *Dw3* gene product is involved in regulating the growth of sorghum, and that mutation in said gene leads to a dwarf phenotype in sorghum but asserts that it is unclear from the instant specification that the sorghum Dw3 gene would function in an identical manner in another plant, as it does in sorghum. The Office Action

asserts that Applicants do not teach other P-glycoprotein encoding genes, within the scope of the elected invention, that have at least 80% identity to SEQ ID NO: 7 or 8, or its complement, or which hybridize under "stringent conditions" to said nucleotide molecule, that could be used in the claimed method of modifying growth of an organism or more specifically a plant. The Office Action further asserts that it would require undue trial and error experimentation for one of skill in the art at the time Applicants' invention to screen through a myriad of nucleotides, identify those that encode a P-glycoprotein that functions to control the growth of an organism in order to practice Applicants' invention within the scope of the instant claims.

In addition, the Office Action asserts that to the extent the claims read on the use of antisense constructs to transform an organism, i.e. a plant, the instant method is only enabled for a method for modifying the growth of sorghum. The Office Action further asserts that the instant specification provides no evidence that transforming a plant, other than sorghum, with an antisense construct having a nucleotide sequence that is complementary to SEQ ID NO: 7 or 8 would modulate the growth of a plant. The Office Action cites Colliver *et al.* ((1997) *Plant Mol. Biol.* 35:509-522) as teaching that heterologous antisense constructs can lead to unpredicted molecular and biochemical phenotypes.

Applicants' invention is drawn to nucleotide molecules encoding P-glycoproteins that are capable of functioning to control the growth of an organism, particularly a plant. Such nucleotide molecules find use in methods for modifying the growth of an organism, particularly a plant. The claimed methods involve the expression of the nucleotide molecules in either the sense or antisense orientation and do not depend on use in a particular plant species such as sorghum.

In contrast to the Examiner's conclusions, the specification provides sufficient guidance to make and identify the nucleotide molecules encompassed by the claims. In particular, Applicants have provided the nucleotide sequence of SEQ ID NOS: 7 and 8. The claimed nucleotide molecules vary from this sequence by structural parameters (*i.e.*, percent sequence identity to SEQ ID NO:7 or 8). Guidance for determining percent sequence homology is provided in the specification on pages 21-25. The claimed nucleotide molecules also include

those that hybridize to SEQ ID NO: 7 and/or 8 under stringent conditions. Guidance for hybridization is set forth in the specification on pages 18-20.

Moreover, the nucleotide molecules of the invention encode P-glycoproteins that are capable of controlling the growth of an organism, particularly a plant. Such nucleotide molecules include those that encode fragments and variants of SEQ ID NO: 9 and encode P-glycoproteins that are capable of controlling the growth of an organism. Guidance regarding alterations that allow the nucleotide molecules and polypeptides of the invention to retain biological activity is also provided. See, for example, pages 14-17. And finally, methods for assaying whether the nucleotide molecules are capable of controlling the growth of an organism when expressed therein are known in the art and are also provided in the instant specification. For example, one of skill in the art could transform a plant with a nucleotide sequence encoding P-glycoprotein operably linked in either a sense or antisense orientation to a promoter and produce a transgenic plant using the guidance set forth in the specification on pages 26-36 and 48-51. The transgenic plant can then be assessed for modified growth relative to a wild-type plant by assessing one or more of the growth-related phenotypic characteristics that are set forth in the specification, particularly on pages 11-12. Accordingly, based on the guidance in the specification, one of skill in the art would be able to determine which nucleotide sequences are encompassed by the present invention.

The Federal Circuit has repeatedly stated that enablement is not precluded by the necessity for some experimentation, so long as the experimentation needed to practice the invention is not undue. *In re Wands* 8 U.S.P.Q.2d 1400 (Fed. Cir. 1988). Furthermore, a considerable amount of experimentation is permissible, if it is merely routine, or if the specification provides a reasonable amount of guidance in which the experimentation should proceed. *Id.*

Applicants stress that when evaluating the quantity of experimentation required, the court looks to the amount of experimentation required to practice a single embodiment of the invention, rather than the amount required to practice every embodiment of the invention. For example, in *Wands*, the claims at issue were drawn to immunoassay methods using any

monoclonal antibody having a binding affinity for HbsAg of at least 10^{-9} M. The PTO had taken the position that the claim was not enabled as it would take undue experimentation to make the monoclonal antibodies required for the assay. The Federal Circuit reversed, and held that the claims were enabled, as the amount of experimentation required to isolate monoclonal antibodies and screen for those having the correct affinity was not undue. *Id.* Clearly, the Federal Circuit did not contemplate that every antibody useful in the methods of the claim must be identified. Rather, the court considered the amount of experimentation required to identify one or a few monoclonal antibodies having the required affinity.

In the instant case, the quantity of experimentation required to practice the invention amounts to two steps, generating a nucleotide sequence having a least 80% sequence identity to SEQ ID NO: 7 and/or 8, or hybridizing under stringent conditions to SEQ ID NO: 7 and/or 8, and assaying for functional activity.

In summary, ample guidance is therefore provided to allow one of skill in the art to identify additional sequences encompassed by claims 18 and 20-23. Consequently, contrary to the Examiner's conclusions, the quantity of experimentation necessary and the amount of guidance presented in the specification is sufficient to enable the claimed methods of using the nucleotide molecules of the invention as set forth in claims 18 and 20-23. Accordingly, the rejection of the claims under 35 U.S.C. § 112, first paragraph, should be withdrawn.

In view of the amendments and remarks, it is submitted that the rejections under 35 U.S.C. § 112, first paragraph, should be withdrawn.

The Rejection of the Claims Under 35 U.S.C. § 102(b) Should Be Withdrawn

Claim 1 was rejected under 35 U.S.C. § 102(b) as being anticipated by Dudler *et al.* ((1992) *J. Biol. Chem.*). Claim1 has been amended. This rejection is respectfully traversed.

The Office Action indicates that the term the "stringent conditions" in claim 1 is indefinite and that the claim is being interpreted to its fullest breadth. The Office Action indicates that a Dudler *et al.* anticipates claim 1 because this reference discloses an isolated

nucleotide molecule comprising a nucleotide sequence that would hybridize to SEQ ID NO: 7 or 8 under stringent conditions. As discussed above, claim 1 has been amended to recite that stringent conditions comprise hybridization at 37°C in 45% formamide, 1 M NaCl, and 1% SDS and a wash in 1X SSC at 55°C. It is submitted that, as amended, claim 1 is not indefinite and thus, is not anticipated by Dudler *et al.*

In view of the amendment and remarks, it is submitted that the rejection under 35 U.S.C. § 102(b) should be withdrawn.

The Rejection of the Claims Under 35 U.S.C. §§ 102/103 Should Be Withdrawn

Claims 1-24 were rejected under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative under 35 U.S.C. § 103 as obvious over, Sidler *et al.* ((1998) *Plant Cell* 10:1523-1636). Claim 19 has been canceled. Claims 1-6, 10, 18, 20, and 24 have been amended. This rejection is respectfully traversed.

The Office Action again indicates that the term "stringent conditions" as used in the claims is indefinite and that the claims are being interpreted to their fullest breadth. The Office Action indicates that Sidler *et al.* discloses an isolated nucleotide molecule that would hybridize to SEQ ID NO: 7 or 8 under stringent conditions and that encodes a P-glycoprotein, a complement of said isolated nucleotide molecule, expression cassettes comprising said sense and antisense nucleotide molecules operably linked to a constitutive promoter, plants transformed with such expression cassettes, and methods for modifying the growth of *Arabidopsis* plants comprising transforming the plant with such expression cassettes. The Office Action notes that Sidler *et al.* does not disclose transformed monocot plants and cites the instant specification in support of the view that the transformation protocols were well-know in the art at the time of the invention. The Office Action then concludes that, in view of the teachings of Sidler *et al.*, Applicants' invention would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention.

As discussed above, claims 1, 4, 18, and 24 have been amended to recite that stringent conditions comprise hybridization at 37°C in 45% formamide, 1 M NaCl, and 1% SDS and a wash in 1X SSC at 55°C. It is submitted that, as amended, the claims are not indefinite and thus, are neither anticipated by, nor obvious in view of, Sidler *et al.*

In view of the amendments and remarks, it is submitted that the rejections under 35 U.S.C. §§ 102(b) and 103 should be withdrawn.

CONCLUSIONS

In view of the above amendments and remarks, Applicants submit that the rejections of the claims under 35 U.S.C. §§ 101, 102, 103, and 112 are overcome. Applicants respectfully submit that this application is now in condition for allowance. Early notice to this effect is solicited.

If in the opinion of the Examiner a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fee

required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,

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CERTIFICATION OF FACSIMILE TRANSMISSION	CERTIFICATE OF MAILING
I hereby certify that this paper is being facsimile transmitted to the Patent and Trademark Office at Fax No. on the date shown below. Marilyn Muñoz (Type or print name of person signing certification.) Signature 8/21/02 Date	I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, Washington, DC 20231, on _____. _____

Version with Markings to Show Changes Made:

In The Specification:

Please amend the paragraph, which begins on page 12 at line 28 and ends on page 13 at line 7 of the specification, as follows:

Compositions of the invention include native nucleotide sequences for genes encoding multidrug-resistance-like-gene-encoded P-glycoproteins, homologues of multidrug-resistance-like-gene-encoded P-glycoproteins, antisense sequences, as well as fragments and variants and fragments thereof. In particular, the present invention provides for isolated nucleic acid molecules comprising nucleotide sequences encoding the amino acid sequences shown in SEQ ID NOS: 4 and 9, or the nucleotide sequences encoding the DNA sequences deposited in a bacterial host as Patent Deposit No. PTA [2646.] 2645. Further provided are polypeptides having an amino acid sequence encoded by a nucleic acid molecule described herein, for example those set forth in SEQ ID NOS: 3 and 8, respectively, those deposited in a bacterial host as Patent Deposit Nos. PTA [2646,] 2645, and fragments and variants thereof.

Please amend the paragraph, which begins on page 13 at line 8, as follows:

Plasmids containing the nucleotide sequences of the invention were deposited with the Patent Depository of the American Type Culture Collection (ATCC), Manassas, Virginia, on November 1, 2000 and assigned Patent Deposit No PTA [2646.] 2645. These deposits will be maintained under the terms of the

Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure. These deposits were made merely as a convenience for those of skill in the art and are not an admission that a deposit is required under 35 U.S.C. §112.

In The Claims:

Please cancel claims 19 and 25-32 without prejudice or disclaimer.

Please amend claims 1-6, 10, 18, 20, and 24 as follows:

1. (Amended) An isolated nucleotide molecule comprising a nucleotide sequence selected from the group consisting of:

[(a) a nucleotide sequence set forth in SEQ ID NO: 1;

(b) a nucleotide sequence set forth in SEQ ID NO: 2;

(c) a nucleotide sequence set forth in SEQ ID NO: 3;

(d)] (a) a nucleotide sequence set forth in SEQ ID NO: 7;

[(e)] (b) a nucleotide sequence set forth in SEQ ID NO: 8;

[(f)] (c) a nucleotide sequence consisting of at least 19 contiguous nucleotides of the nucleotide sequence set forth in [any one of (a)-(e);] (b);

[(h)] (d) a nucleotide sequence encoding the amino acid sequence set forth in SEQ ID NO: 9;

[(i)] (e) a nucleotide sequence encoding at least 70 contiguous amino acids of the amino acid sequence set forth in SEQ ID NO: 9;

[(j)] (f) a nucleotide sequence comprising at least 80% identity to the sequence set forth in SEQ ID NO: 7;

[(k)] (g) a nucleotide sequence comprising at least 80% identity to the sequence set forth in SEQ ID NO: 8;

[(l)] (h) a nucleotide sequence that is complementary to [the] a nucleotide sequence [of any one of (a)-(k);] selected from the group consisting of the nucleotide sequences set forth in (a)-(g); and

[(m)] (i) a nucleotide sequence that hybridizes under stringent conditions to [the] at least one nucleotide sequence [any one of [(a)-(e), or to a complementary sequence thereof.] selected from the group consisting of the nucleotide sequences set forth in (a) and (b) and complementary sequences thereof, said stringent conditions comprising hybridization at 37°C in 45% formamide, 1 M NaCl, and 1% SDS and a wash in 1X SSC at 55°C;

wherein said nucleotide molecule encodes a P-glycoprotein that controls plant growth or said nucleotide molecule is complementary to a nucleotide sequence that encodes said P-glycoprotein.

2. (Amended) An expression cassette comprising the nucleotide [sequence] molecule of claim 1, said nucleotide sequence operably linked to a promoter that drives expression in a plant cell.

3. (Amended) The expression cassette of claim 2, wherein said promoter is selected from the group consisting of tissue-preferred, constitutive, chemically regulatable, and [pathogen-preferred] pathogen-inducible promoters.

4. (Amended) A transformed plant having stably incorporated into its genome a nucleotide [sequence] molecule operably linked to a promoter that drives expression in a plant cell, wherein said nucleotide [sequence] molecule [is] comprises a nucleotide sequence selected from the group consisting of:

[(a) a nucleotide sequence set forth in SEQ ID NO: 1;
(b) a nucleotide sequence set forth in SEQ ID NO: 2;
(c) a nucleotide sequence set forth in SEQ ID NO: 3;
(d)] (a) a nucleotide sequence set forth in SEQ ID NO: 7;
[(e)] (b) a nucleotide sequence set forth in SEQ ID NO: 8;

[(f)] (c) a nucleotide sequence consisting of at least 19 contiguous nucleotides of the nucleotide sequence set forth in [any one of (a)-(e);] (b);

[(h)] (d) a nucleotide sequence encoding the amino acid sequence set forth in SEQ ID NO: 9;

[(i)] (e) a nucleotide sequence encoding at least 70 contiguous amino acids of the amino acid sequence set forth in SEQ ID NO: 9;

[(j)] (f) a nucleotide sequence comprising at least 80% identity to the sequence set forth in SEQ ID NO: 7;

[(k)] (g) a nucleotide sequence comprising at least 80% identity to the sequence set forth in SEQ ID NO: 8;

[(l)] (h) a nucleotide sequence that is complementary to [the] a nucleotide sequence [of any one of (a)-(k);] selected from the group consisting of the nucleotide sequences set forth in (a)-(g); and

[(m)] (i) a nucleotide sequence that hybridizes under stringent conditions to [the] at least one nucleotide sequence [any one of [(a)-(e), or to a complementary sequence thereof.] selected from the group consisting of the nucleotide sequences set forth in (a) and (b) and complementary sequences thereof, said stringent conditions comprising hybridization at 37°C in 45% formamide, 1 M NaCl, and 1% SDS and a wash in 1X SSC at 55°C;

wherein said nucleotide molecule encodes a P-glycoprotein that controls plant growth or said nucleotide molecule is complementary to a nucleotide sequence that encodes said P-glycoprotein.

5. (Amended) The plant of claim 4, wherein said promoter is selected from the group consisting of tissue-preferred, constitutive, chemically regulatable, and [pathogen-preferred] pathogen-inducible promoters.

6. (Amended) The plant of claim 4, wherein said nucleotide [sequence] molecule is operably linked to said promoter for the production of antisense transcripts.

10. (Amended) The plant of claim 9, wherein said dicot is selected from the group consisting of soybeans, sunflowers, safflowers, alfalfa, [Brassica] *Brassica* sp., cotton, peanuts and fruit trees.

18. (Amended) A method for modifying the growth of [an organism,] a plant, said method comprising transforming [an organism] a plant with a nucleotide [sequence] molecule encoding a P-glycoprotein wherein said P-glycoprotein functions to control growth of [an organism,] a plant, said nucleotide [sequence] molecule operably linked to a promoter [capable of driving the] that drives expression of said [sequence] nucleotide molecule in said [organism.] plant, said nucleotide molecule comprises a nucleotide sequence selected from the group consisting of:

(a) a nucleotide sequence set forth in SEQ ID NO: 7;

(b) a nucleotide sequence set forth in SEQ ID NO: 8;

(c) a nucleotide sequence consisting of at least 19 contiguous nucleotides of the nucleotide sequence set forth in (b);

(d) a nucleotide sequence encoding the amino acid sequence set forth in SEQ ID NO: 9;

(e) a nucleotide sequence encoding at least 70 contiguous amino acids of the amino acid sequence set forth in SEQ ID NO: 9;

(f) a nucleotide sequence comprising at least 80% identity to the sequence set forth in SEQ ID NO: 7;

(g) a nucleotide sequence comprising at least 80% identity to the sequence set forth in SEQ ID NO: 8;

(h) a nucleotide sequence that is complementary to the nucleotide sequence of any one of (a)-(g); and

(i) a nucleotide sequence that hybridizes under stringent conditions to at least one nucleotide sequence selected from the group consisting of the nucleotide sequences set forth

in (a) and (b) and complementary sequences thereof, said stringent conditions comprising hybridization at 37°C in 45% formamide, 1 M NaCl, and 1% SDS and a wash in 1X SSC at 55°C;

wherein the growth of said transformed plant is modified.

20. (Amended) The method of claim 18, wherein said nucleotide [sequence] molecule is operably linked to said promoter for the production of antisense transcripts.

24. (Amended) A transformed plant cell having stably incorporated into its genome a nucleotide [sequence] molecule operably linked to a promoter that drives expression in a plant cell, wherein said nucleotide [sequence] molecule [is] comprises a nucleotide sequence selected from the group consisting of:

[(a) a nucleotide sequence set forth in SEQ ID NO: 1;

(b) a nucleotide sequence set forth in SEQ ID NO: 2;

(c) a nucleotide sequence set forth in SEQ ID NO: 3;

(d)] (a) a nucleotide sequence set forth in SEQ ID NO: 7;

[(e)] (b) a nucleotide sequence set forth in SEQ ID NO: 8;

[(f)] (c) a nucleotide sequence consisting of at least 19 contiguous nucleotides of the nucleotide sequence set forth in [any one of (a)-(e);] (b);

[(h)] (d) a nucleotide sequence encoding the amino acid sequence set forth in SEQ ID NO: 9;

[(i)] (e) a nucleotide sequence encoding at least 70 contiguous amino acids of the amino acid sequence set forth in SEQ ID NO: 9;

[(j)] (f) a nucleotide sequence comprising at least 80% identity to the sequence set forth in SEQ ID NO: 7;

[(k)] (g) a nucleotide sequence comprising at least 80% identity to the sequence set forth in SEQ ID NO: 8;

[(l)] (h) a nucleotide sequence that is complementary to [the] a nucleotide sequence [of any one of (a)-(k);] selected from the group consisting of the nucleotide sequences set forth in (a)-(g); and

[(m)] (i) a nucleotide sequence that hybridizes under stringent conditions to [the] at least one nucleotide sequence [any one of [(a)-(e), or to a complementary sequence thereof.] selected from the group consisting of the nucleotide sequences set forth in (a) and (b) and complementary sequences thereof, said stringent conditions comprising hybridization at 37°C in 45% formamide, 1 M NaCl, and 1% SDS and a wash in 1X SSC at 55°C;

wherein said nucleotide molecule encodes a P-glycoprotein that controls plant growth or said nucleotide molecule is complementary to a nucleotide sequence that encodes said P-glycoprotein.